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ABSTRACT

Colleague and student ratings were gathered on a group of 477 instructors and then compared to the instructor's research productivity and academic rank. Colleague and student ratings were not found to be significantly related to the instructor's research productivity. However, colleague rating was significantly related to academic rank, indicating that the reputation of the instructor could influence colleague ratings. An 8-item bibliography and appendices, a faculty poll form, and the Illinois Course Evaluation Questionnaire are included. (Author)

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research report #

research report

An Investigation of the Relationship between Colleague Rating, Student Rating, Research Productivity, and Academic Rank in Rating Instructional Effectiveness

by

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March, 1972

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Abstract

Colleague and student ratings were gathered on a group of 477 instructors and then compared to the instructor's research productivity and academic rank. Colleague and student ratings were not found to be significantly related to the instructor's research productivity. However, colleague rating was significantly related to academic rank indicating that the reputation of the instructor could be influencing colleague ratings.

An Investigation of the Relationship Between Colleague Rating, Student Rating, Research Productivity, and Academic Rank in Rating Instructional Effectiveness

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University of Illinois

A plethora of research studies has been conducted in the area of teacher effectiveness. Domas and Tiedeman (1950) have cited over 1000 studies in this area, with a variety of interpretations and assumptions concerning what a "good teacher" is. As an example, according to Sister Long (1957) "a teacher is effective when he does things or behaves in ways that stimulate the learning of understandings, skills, desirable attitudes and habits, and adequate personal adjustment. Changes must include all-around pupil growth: intellectual, social, emotional, aesthetic, and spiritual" (p. 220).

If we accept Guthrie's (1949) contention that teaching performance is best judged by students and colleagues, then we would expect a positive relationship to exist between the two judgements. Guthrie also asserted that student ratings represent more valid judgements than colleague ratings due to the fact that students spend more time in contact with the particular teacher than a faculty member does. It is important to note that colleague rating may be affected or influenced by acquaintanceship, student hearsay, the effect of the ratee's instruction on the rater's students, and inferences based on the academic records of the ratee.

There are few studies that deal with the relationship between teaching effectiveness and publication (research productivity). For example, Guthrie (1949), and Voeks (1962) found that there was no significant association between research contributions and teaching effectiveness. More recently, Stallings and Singhal (1969) reported a statistically significant but small correlation between publications and student evaluation.

In determining effective teaching, therefore, researchers have used a variety of methods, most popular among which are peer (colleague) rating, administrator

(supervisor) rating, student rating, self-rating and rating by number of publications. This study deals with teacher effectiveness with respect to the relationship among student ratings, ratings by fellow teachers (colleagues), and research productivity.

Method

During the fall of 1969-70 a questionnaire (see Appendix A) was sent out to the University of Illinois faculty (Urbana-Champaign Campus) asking them to nominate or indicate three faculty members whom they felt deserve mention for good teaching. Individual faculty members are rated according to the frequency of nomination which ranged from 1 to 26. Therefore, this study does not include faculty members who were not nominated. Academic rank and sex of each nominee was also determined. Academic rank was defined as the academic rank held by the faculty member at the University of Illinois during 1969-70. The academic rank consists of teaching assistant, instructor, assistant professor, associate professor, and full professor with scale values of 1, 2, 3, 4 and 5 respectively.

Two student evaluation questionnaires which are used to collect student attitude data toward instructors and courses at the University of Illinois were used (see Appendix B) to obtain the student evaluation data for the nominated faculty members. The Illinois Course Evaluation Questionnaire (CEQ) is a 50 item questionnaire that is used to elicit student opinions about a course. It is composed of six subscales: (a) General Course Attitude, (b) Method of Instruction, (c) Course Content, (d) Interest and Attention, (e) Instructor, and (f) Specific Items (Spencer and Aleamoni, 1970). The student responds by indicating his agreement or disagreement on a 4-point scale where 1 represents least favored and 4 best favored with respect to teaching effectiveness. The second student evaluation questionnaire used was The Advisor, a 34 item questionnaire also used in evaluating courses. It is divided into four sections or subscales: (a) Overall

Evaluation of Course, (b) Instructor, (c) Quiz or Discussion, and (d) Laboratory or Language Lab. The two major parts of The Advisor (Overall Evaluation of Course and Instructor) apply to all types of courses. The scale values for The Advisor are the same as the CEQ.

The CEQ, composed of 7 variables (the six subscales plus a Total for all 50 items), and The Advisor, composed of 2 variables (Overall Evaluation of Course and Instructor), were collected for all nominated faculty members who had one or both student evaluations for the fall and spring semester of 1969-70. Due to the scarcity of the number of faculty members who had CEQ ratings, the collection of CEQ ratings was extended as far back as 1966-67. For those individuals who had more than one CEQ or Advisor rating, the average was computed.

In addition, publications of the faculty were collected from a publication entitled "Publications of the Faculty and Titles of Doctoral Dissertations" (1966, 1967, 1968, 1969) put out yearly by the University of Illinois. Senior authorship was not distinguished in the collection of the data. The listing gives the author, co-author(s), title and bibliographic citation of all the books, articles, technical reports and bulletins, book reviews and doctoral dissertations published by the university faculty. Publications in the present analysis consisted of the weighted and unweighted sum of frequency counts of five variables (books, books edited, articles, reviews, and bulletins and technical reports). The weighting scheme used on the five publication variables was that suggested by Stallings and Singhal (1969) and is presented in Table 1. Four hundred seventy-seven different faculty members were nominated at least once. Of these, CEQ data were available for 43, Advisor data for 474, and publications for 362. A correlational analysis was used along with multiple regression on the variables of interest.

Table 1

Weights Assigned to Publications

Publication	Weight I	Weight II
Books	15	9
Books Edited	9	4
Articles	3	3
Book Reviews	2	2
Bulletins and Technical Reports	3	3

Results

A description as well as the mean and standard deviation of the variables are presented in Table 2. The distribution of rating by other instructors (Variable 3) was positively skewed, i.e., the majority of the faculty members had a nomination of 1, 2, 3 or 4. This was also indicated by the low mean (Table 2). For the same group of individuals the average academic rank (Variable 1) seems to fall between assistant professor and associate professor.

In Table 3 the data above the main diagonal represent the intercorrelations among the variables while the data below the main diagonal represent the corresponding sample sizes.

The average of the intercorrelations of the CEQ variables (6, 7, 8, 9, 10 and 11) excluding the Total CEQ variable (12) is about .85 and the average correlation of each CEQ subscale variable with the Total CEQ variable is .93. This high intercorrelation among the CEQ variables is an indication that variable 12 (CEQ Total) should account for most of the variance that variables 6, 7, 8, 9, 10 and 11 would account for separately. Hence, variable 12 may be used as a measure of teacher effectiveness without considering the rest of the CEQ variables.

Table 2

Variable Description, Mean and Standard Deviation

VARIABLES	N	MEAN	S.D.
1. Academic Rank	477	3.83	1.17
2. Sex	477	1.12	.32
3. Colleague Rating	477	2.98	3.14
Advisor Subscales			
4. Overall Evaluation of Course	474	3.11	.28
5. Instructor	474	3.22	.39
CEQ Subscales			
6. General Course Attitude	43	3.16	.35
7. Method of Instruction	43	2.84	.42
8. Course Content	43	2.97	.24
9. Interest and Attention	43	2.85	.42
10. Instructor	43	3.22	.34
11. Specific Items	43	2.95	.20
12. Total	43	3.00	.30
13. Publications	362	7.89	7.55

The correlation between variable 4 (Advisor Overall Subscale) and variable 5 (Advisor Instructor Subscale) was 0.84. Unlike the CEQ, the Advisor lacks an Advisor Total scale that combines variables 4 and 5. However, due to the high correlation, variable 5 may be used to represent variable 4 in the measurement of teaching effectiveness.

Table 4 presents the intercorrelations of variables 1, 3, 5, 12 and 13. The correlation between variables 1 and 13 (Academic Rank and Publication) is 0.32 and is significant at $p<.05$. The correlation of variable 3 with academic rank, Advisor Instructor and CEQ Total is 0.20, 0.28, and 0.27, respectively, and all of them are significant at $p<.05$ level. In order to determine the contributions of Academic Rank Advisor, CEQ, and Publication in predicting colleague

Table 3

Intercorrelations and Corresponding Sample Sizes

VARIABLES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Academic Rank		-.22	.20	.02	.03	-.30	-.29	-.17	-.26	-.05	-.14	-.23	.32	.31	.33
2. Sex	477		-.09	.06	.03	.15	.13	.13	.05	.23	.19	.15	-.11	-.08	-.10
3. Colleague Rating	477	477		.17	.28	.16	.30	.30	.23	.27	.29	.27	.07	.09	.08
Advisor Subscales															
4. Overall Evaluation of Course	474	474	474		.84	.52	.48	.52	.44	.48	.56	.52	.01	.03	.02
5. Instructor	474	474	474	474		.53	.58	.54	.50	.56	.57	.58	-.02	.02	.00
CEQ Subscales															
6. General Course Attitude	43	43	43	40	40		.87	.86	.94	.71	.84	.93	-.13	.03	-.04
7. Method of Instruction	43	43	43	40	40	43		.84	.92	.87	.87	.96	-.02	.09	.04
8. Course Content	43	43	43	40	40	43	43		.88	.79	.89	.93	.00	.16	.09
9. Interest and Attention	43	43	43	40	40	43	43	43		.75	.82	.96	-.10	.00	-.01
10. Instructor	43	43	43	40	40	43	43	43	43		.83	.88	.00	.09	.05
11. Specific Items	43	43	43	40	40	43	43	43	43	43		.93	.08	.20	.15
12. Total	43	43	43	40	40	43	43	43	43	43	43		-.04	.10	.04
Publications															
13. Unweighted Sum	362	362	362	360	360	28	28	28	28	28	28	28		.88	.95
14. Weighted Sum I	362	362	362	360	360	28	28	28	28	28	28	28	362		.98
15. Weighted Sum II	362	362	362	360	360	28	28	28	28	28	28	28	362	362	

rating a multiple correlation and the weights for each predictor variable was computed. The multiple correlation was found to be .40 and the standardized and unstandardized regression equations are presented below:

$$\hat{Z}y = (.6722)\ CEQ + (.6667)\ Academic\ Rank + (.3217)\ Advisor - (.0112)\ Publications$$

$$\hat{Y} = 1.554 + (2.694)\ CEQ + (.689)\ Academic\ Rank + (.990)\ Advisor - (.001)\ Publications$$

Where $\hat{Z}y$ = predicted colleague rating (standardized)
$\hat{Y}$ = predicted colleague rating (unstandardized)

Table 4

Selected Intercorrelations

VARIABLES	1	5	12	13	3
1. Academic Rank	1.00	.03	- .23	.32*	.20*
5. Advisor Instructor		1.00	.58*	- .02	.28*
12. CEQ Total			1.00	- .04	.27*
13. Publications				1.00	.07
3. Colleague Rating					1.00

* Significant at .05 level.

Discussion

It is evident from the results presented that the academic rank of an instructor seems to be more highly related to publications than to student opinion, sex or colleague rating. Colleague rating as well as student evaluation failed to show a significant relation with publications, but colleague rating was significantly related to academic rank. One would conclude that an instructor's rating by colleagues is unrelated to the number of publication(s) that the instructor has produced and, therefore, that publication may not be an important factor in rating an instructor's teaching. Guthrie (1949) and Voeks (1962) also arrived at the same conclusion in their study. However, the

Stallings and Singhal (1969) results seem to disagree with the above conclusion. It is important to note that the sample size used for the correlation between CEQ Total and Publication (N=28) was about 1/4 of that of Stallings and Singhal's report. But the sample size for the Advisor Instructor (N=360) is about 3 times that of Stallings and Singhal's. As already indicated the CEQ and Advisor ratings are highly correlated, implying that the sample size differences between the present study and Stallings and Singhal's may not be responsible for the different results.

Another implication is that teachers and students differ in the basis of their rating since instructors seem to take into consideration academic rank of the instructor in their rating while this is not the case for students. However, this relationship is explainable in terms of reputation, as an instructor is at a university longer and is apt to be known to more colleagues. On the other hand, students are rating the actual performance they observe and, hence, should not be affected by reputation.

Summary

Although the present study was able to provide data concerning the relationship of publications to instructional ratings and the instructor's academic rank to his instructional rating, there are other related issues that need to be investigated. For example: (a) Would the relationship between an instructor's academic rank, publication, and student rating be the same if all instructors rated by students were used? (b) Do raters at a particular academic rank tend to rate higher, instructors at that same rank? (c) Does the reputation of an instructor affect student ratings?

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Appendix A

TO: Faculty Member Addressed

FROM: Richard E. Spencer

SUBJECT: Faculty Poll for Effective Teaching

DATE: November 25, 1969

In order to refine our measurement of effective teaching, we would like to compare student opinion of good teaching with faculty opinion. To this end we would like you to indicate below who you believe is a good teacher on this campus -- defined as you see fit. Please nominate or indicate three people who you feel are, in fact, good teachers and return this form in the enclosed envelope. Please print the names and departments (or courses) of one to three faculty members at the University of Illinois Urbana campus whom you feel deserve mention for good teaching.

1. _____ _____
Last Name, First Department

2. _____ _____
Last Name, First Department

3. _____ _____
Last Name, First Department

Appendix B

The Advisor

Illinois Course Evaluation Questionnaire - Form 66

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Side Two

THE ADVISOR

OMIT ITEMS WHICH DO NOT APPLY TO THIS COURSE

OVERALL EVALUATION OF COURSE (These items relate only to the Lecture section.)

- I learned a great deal in this course.
- I enjoyed the course.
- Too much irrelevant material was presented.
- Examinations mainly tested trivia.
- Grading was based on clear standards.
- The amount of work required for this course was excessive.
- Content of examinations was unfair.
- This course had foggy objectives.
- Out-of-class work (i.e. Homework) was relevant and helpful.
- Grading in this course has been unfair.
- The course material seemed worthwhile.
- All that is required for this course is memorization.
- Content of the course was good.
- This course was a waste of time.
- Note taking in the lectures was difficult.
- This course could be considerably improved.
- Considering all homework (i.e. papers, projects, reading, etc.) how many hours per week did you spend studying?
  A. 0-3 B. 4-6 C. 7-9 D. 10 or more
- What types of exams were given?
  A. Objective or mathematical problem solving only. B. Essay only. C. Both A. and B.

INSTRUCTOR (These items relate only to the main instructor.)

Write your main instructor's name

- The presentations by the instructor(s) were excellent.
- The instructor seems to dislike teaching this course.
- The instructor was interesting.
- The personality of the instructor was a problem.
- I would like to take another course taught by this instructor.
- In general, I rank this instructor higher than others I have had.

QUIZ OR DISCUSSION (These items relate only to the Quiz or Discussion section.)

Write your Quiz or Discussion instructor's name (T.A.)

- This class helped to clarify texts and lectures.
- There was ample opportunity to ask questions.
- The T.A. did not cover enough of the subject matter introduced in lectures.
- This T.A. is an effective instructor.
- Questions were answered clearly and appropriately.
- This class was valuable to the understanding of the course.

LABORATORY OR LANGUAGE LAB (These items relate only to the Laboratory or Language Lab.)

Write your Laboratory instructor's name

- The lab assistant was very helpful.
- There were too many problems with the lab equipment.
- Too much time was wasted in the lab.
- Lab work was well organized.

SAMPLE MARKS

USE PENCIL ONLY

RESPONSE CODE

MARK ... IF YOU STRONGLY AGREE WITH THE STATEMENT

MARK ... IF YOU AGREE WITH THE STATEMENT

MARK ... IF YOU DISAGREE WITH THE STATEMENT

MARK ... IF YOU STRONGLY DISAGREE WITH THE STATEMENT

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THE ADVISOR

Side One

Please use this side of the form for your personal comments on teacher effectiveness and general course value. Then fill in card and answer the objective questions on the other side, using pencil only. Remember: these questionnaires will be collected by a student in your class and mailed by him to the Advisor staff. Your instructor will not see your completed evaluation.

COURSE CONTENT

Please give your comments on the course content. Should some units be omitted? Should more time be spent on some units?

INSTRUCTORS Write the name of your Problems instructor _____ T.A. _____

What are your general comments about the instructor in this course?

PAPERS AND HOMEWORK

Comment on the value of books, homework, and papers (if any) in this course.

EXAMS

Comment on the exams (quizzes, practicals) as to difficulty, fairness, etc.

GENERAL

1. What improvements in this course would you suggest?

2. Please give your thoughtful evaluation of this course with comments. Are you satisfied with what you got out of the course? Do you consider it a valuable educational experience? Simply a means of earning a requirement? Or a disappointment? Please comment.

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ILLINOIS COURSE EVALUATION QUESTIONNAIRE — FORM 66

Measurement and Research Division, Office of Instructional Resources, UNIVERSITY OF ILLINOIS © By Richard E. Peterson, 1967

DIRECTIONS: 1. PRINT INSTRUCTOR'S LAST NAME HERE _____
2. COMPLETE IDENTIFICATION INFORMATION TO THE RIGHT.
3. RESPOND TO THE ITEMS PRESENTED FRANKLY AND COMPLETELY. RESPONSE MUST BE MADE ON THIS FORM (NO ADDITIONAL PAPER).
4. USE PENCIL ONLY. DO NOT USE PEN, BALL POINT OR INK OF ANY KIND.

I have now also other learning methods as well.
It was a waste of time.
Overall, the course was good.
The workload was very good.
The instructor seemed to be interested in students as persons.
More courses should be taught this way.
The course held my interest.
I would have preferred another method of teaching in this course.
It was easy to remain attentive.
The instructor did not synthesize, integrate or summarize effectively.
Not much was gained by having this course.
The instructor encouraged the development of new viewpoints and approaches.
The course aided in learning mathematics.
It was difficult to remain attentive.
Instructor did not speak distinctly and in such a way that students could understand him adequately.
Homework assignments were helpful in understanding the course.
There was not enough student participation in this type of course.
The instructor had a thorough knowledge of his subject matter.
The content of the course was good.
The course increased my general knowledge.
The types of test questions used were good.
Held my attention throughout the course.
The demands of the students were not considered by the instructor.
Uninteresting course.
It was a very worthwhile course.
Some things were not explained very well.
The way in which this course was taught results in better student learning.
The course material was too difficult.
One of my poorest courses.
Material in the course was easy to follow.
The instructor seemed to consider teaching as a chore or routine activity.
More outside reading is necessary.
Course material was poorly organized.
Course was not very helpful.
It was quite interesting.
I think that the course was taught quite well.
I would prefer a different method of instruction.
The pace of the course was too slow.
At times I was confused.
Excellent course content.
The examinations were too difficult.
Generally, the course was well organized.
Ideas and concepts were developed too rapidly.
The content of the course was too elementary.
Some days I was not very interested in this course.
It was quite boring.
The instructor exhibited professional dignity and bearing in the classroom.
Another method of instruction should have been employed.
The course was quite useful.
I would take another course that was taught this way.

SAMPLE MARKS
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RESPONSE CODE
MARK ... STRONGLY AGREE
MARK ... AGREE
MARK ... DISAGREE
MARK ... STRONGLY DISAGREE

IF PART I ON IT IS TO BE USED MARK HERE →

COMPLETE SECTIONS BELOW ACCORDING TO YOUR INSTRUCTOR'S DIRECTIONS.

OPTIONAL PART II ITEMS 51-75

OPTIONAL PART III ITEMS 76-100